Performance Track Leading Practices

Using LEED-EB to Guide Building and Site-wide Environmental Performance at New Hampshire Ball Bearings, Inc.

Costs and Benefits of Implementing LEED-EB

Costs	Savings and Other Benefits
Wide range of implementation costs depending on condition of facility buildings and site.	Reduced operating cost as demand for water and energy is reduced.
Capital expenditures for new materials and technologies; e.g., biomass boiler, low flow faucets, and other resource-efficient technologies.	Encourages cost saving improvements—e.g., biomass boiler reduces NHBB's fuel costs.
Calculating baselines for indoor air quality, water, and energy performance may require outside contractors.	Improved indoor work environment from better indoor air quality; employees may take fewer sick days.
Fee paid to USGBC for LEED certification.	Creates new capabilities in energy management and performance tracking.

National Environmental PerformanceTrack
U.S. Environmental Protection Agency

EPA United States Environmental Protection Agency

PERFORMANCE TRACK FACILITY

New Hampshire Ball Bearings, Inc.,
Peterborough, New Hampshire

GOAL CATEGORY

Alternative Goal: Implement LEED-EB Green Building Practices

RELATED INDICATORS

Inputs: Water Use, Energy Use

OVERVIEW

New Hampshire Ball Bearings, Inc., (NHBB) manufactures precision bearings and bearing products. The HiTech Division of NHBB occupies a 240,000-square-foot facility on 35 acres in the rural Monadnock region of southwestern New Hampshire. As a charter member of EPA's Performance Track program, NHBB uses its Environmental Management System (EMS) to push continuous improvement across its facility operations. In 2007, the facility initiated a three-year project to improve the environmental performance of its non-production buildings by following the LEED-EB process.

LEED—Leadership in Energy and Environmental Design—is a voluntary rating system developed by the U.S. Green Building Council. It provides a benchmark for "green buildings" by establishing a common standard of measurement for building performance. Traditional building management practices consume large amounts of natural resources in the form of energy use, water use, and cleaning materials; LEED-EB (Existing Buildings) addresses these impacts by supporting the efforts of building managers and owners to reduce the environmental footprints of existing buildings. By following LEED-EB standards, commercial buildings can achieve lower operating costs and higher indoor air quality compared with buildings that follow traditional management practices. NHBB began its LEED-EB effort in 2007, and is on track to meet the requirements for certification by 2010.

NHBB'S GREEN BUILDING INITIATIVE

After making substantial environmental performance improvements since the beginning of its Performance Track membership, NHBB decided to pursue LEED-EB certification as a way to raise the bar on its sustainable building operation and maintenance practices. The LEED-EB process requires periodic recertification and emphasizes continuous improvement over a building's entire useful life. LEED's structured, performance-based rating system draws attention to a wide range of improvement areas, including indoor air quality, exterior building site management (e.g., landscaping), water and energy use, environmentally preferred products for cleaning and alterations, and waste stream management. The LEED system rates buildings in six categories:

- ★ Sustainable Sites
- ★ Water Efficiency
- ★ Energy and Atmosphere

NHBB's biomass boiler helps the facility earn points toward LEED-EB certification and uses locally sourced wood pellets, which are considered carbon neutral.

- ★ Materials and Resources
- ★ Indoor Environmental Quality
- ★ Innovation in Upgrades, Operations, and Maintenance

Within these categories are general prerequisites for performance, along with specific environmental goals in areas such as stormwater management, water-use reduction, and recycling by occupants. For NHBB, the LEED-EB process uncovered new opportunities for non-production building performance improvements that had not been considered within the facility's EMS targets. By focusing on buildings, the LEED framework expanded NHBB's ongoing pollution prevention efforts beyond the manufacturing floor.

A points-based scoring system is a central element of the certification process and provides a clear agenda for measuring sustainable building performance improvements according to monitored and documented goals. The LEED points system is flexible and allows the project team to decide which points offer the greatest benefit for the project. Points are awarded for sustainable practices that address a building's environmental impact, defined as the environmental or human effect of the design, construction, operation, and maintenance of the building, such as greenhouse gas emissions, fossil fuel use, toxins and carcinogens, air and water pollutants, and indoor environmental conditions. To identify opportunities for receiving LEED points, NHBB used the building scorecard as a gauge for certification readiness, and is now in the process of implementing a LEED-EB plan based on its baseline calculations.

Many of NHBB's LEED-EB improvements evolved from ongoing efforts at the facility: e.g., procurement of materials with the highest available recycled content, the use of GreenSeal janitorial products, and installation of a biomass boiler powered by wood pellets sourced seven miles from the NHBB facility. Installing the biomass boiler was a big capital investment, but by using a local, renewable resource for fuel, the facility is saving tens of thousands of dollars in fuel costs annually, and dramatically reducing its carbon footprint.[1]

IMPLEMENTING LEED-EB AT NHBB

The LEED reporting system can take time to adopt: while a facility may already be following some relevant practices, it may be necessary to reformat existing data in order to meet LEED protocols. Implementation of the LEED-EB program has been easier at NHBB due to its existing EMS. Having an ISO 14001 EMS certification complements the LEED process in many ways:

- ★ It enables NHBB to identify and control the environmental impacts of its business activities.
- ★ It provides data to link improvement goals with performance changes over the course of an existing building's useful life.
- ★ LEED-EB supports a facility's EMS by incorporating non-production assets and the entire building portfolio.

To obtain LEED points, NHBB is leveraging past improvements and pursuing new facility management practices, including:

- ★ Erosion and sediment control policies and procedures
- ★ Use of a biomass boiler on site
- ★ Responsible snow and ice management (e.g., minimizing the use of salt)
- ★ Tighter building water-efficiency measures and monitoring using LEED calculation protocols
- ★ Building-wide energy performance calculations according to LEED
- ★ Waste stream audits
- ★ Indoor air-quality calculations

Some of these past improvements had been performed as part of NHBB's EMS, but reformatting was necessary to document information according to LEED specifications.

[1] Wood pellet fuel is considered carbon neutral because a tree will absorb as much carbon during its lifetime as it gives off when it is burned, with no net gain in carbon dioxide emissions.

Calculating baseline metrics is challenging for certain LEED-EB goals, including indoor air quality and energy measurements. Normally, Energy Star's Portfolio Manager tool can help building managers establish an energy performance baseline and identify cost-effective opportunities for increased efficiency, but NHBB building types do not meet the existing criteria currently established in Portfolio Manager. The facility had to hire outside experts to perform these calculations.

BENEFITS OF LEED-EB FOR NHBB

LEED-EB presents facility managers with a strong, data-driven approach to minimizing the negative impacts of buildings on the environment. Successful implementation of the LEED-EB process results in benefits for everyone associated with the building: owners save on operating costs and have an increased value asset; occupants work in a healthier workspace resulting in reduced absenteeism; and the community benefits from reduced demand for landfill space, water and wastewater treatment services, and energy generation. Energy performance improvements such as NHBB's biomass boiler also can generate cost savings over time if the price of energy increases. NHBB sees its green building initiative as a new way to operationalize the sustainability mindset—another demonstration of its commitment to continuous environmental improvement.

RESOURCES FOR MORE INFORMATION

- ★ EPA's Green Building site [http://www.epa.gov/greenbuilding/] is a gateway to information on how to create and use healthier and more resource-efficient models of construction, renovation, operation, maintenance and demolition.
- ★ The U.S. Green Building Council [http://www.usgbc.org/] is a nonprofit trade organization that promotes sustainable construction and building management practices. It develops LEED standards and offers a host of educational opportunities, including workshops and Web-based seminars to educate the public and industry professionals on different elements of the green building industry.